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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/003,116

12/06/2001

Mark Tuttle

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5771

24998

7590

03/19/2003

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EXAMINER

BEREZNY, NEMA O

ART UNIT

PAPER NUMBER

2813

DATE MAILED: 03/19/2003

6

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/003,116

Applicant(s)

TUTTLE, MARK

Examiner

Nema O Berezny

Art Unit

2813

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 January 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 87-96 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 87-96 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 03 January 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

The objection to the drawings, made in prior Office Action is hereby withdrawn, subsequent to corrections made by Applicant in Amendment B, filed 1-3-03.

### ***Claim Rejections - 35 USC § 112***

The rejection of claim 90 under 35 USC 112 second paragraph, made in prior Office Action is hereby withdrawn, subsequent to corrections made by Applicant in Amendment B, filed 1-3-03.

### ***Specification***

Cancellation of claims 70-86 is hereby acknowledged.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 87-88 and 90 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakagawa et al. (4,801,489). Nakagawa discloses: forming an insulating layer (Fig.8

el.24) over a first surface of a substrate (el.12); inherently providing a support surface for an integrated circuit chip; and providing a layer of magnetic field shielding material (el.22,26) between said insulating layer and said first surface, and on the top and bottom surfaces of said substrate, which shields said IC chip from external magnetic fields.

Claim 90 is rejected under 35 U.S.C. 102(b) as being anticipated by Dlugokecki et al. (5,406,117). Dlugokecki discloses a method of forming a chip carrier (col.6 lines 12-17) for supporting an integrated circuit chip containing structures which may be affected by external magnetic fields, said method comprising: forming an insulating layer (col.6 lines 61-63; Fig.4-5 no#) over a first surface of a substrate (el.64); providing a support surface (el.64) for said IC chip; and providing a layer of magnetic field shielding material on both a bottom surface (el.88) and a top surface (el.86) of said chip carrier (col.6 lines 34-41).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 89 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakagawa as applied to claims 87-88 above, and further in view of Fukuoka (5,949,654). Nakagawa does not disclose a magnetic field shielding material embedded within a PCB. However, Fukuoka discloses a multiple layered PCB, comprising an embedded magnetic shielding material layer (Fig.1 el.104). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to use the embedded magnetic shielding material layer of Fukuoka with the method of packaging a semiconductor device of Nakagawa in order to be able to attach external terminals to said PCB.

Claims 91-96 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakagawa as applied to claims 87, 88, and 90 above, and further in view of Tracy et al. (5,902,690). Nakagawa does not disclose a magnetic memory device or shielding material comprising ferrites, manganites, chromites or cobaltites. However, Tracy discloses forming a magnetic RAM device (title), and magnetic field shielding material comprising nickel ferrite (col.4 line 65 – col.5 line 10), and magnetic material comprising nickel particles (col.5 lines 15-30). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to use the MRAM device of Tracy with the method of packaging a semiconductor device of Nakagawa in order to effectively shield said device from undesirable magnetic fields.

***Response to Arguments***

Applicant's arguments with respect to claim 90 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments regarding claims 87-89 and 91-96, filed 1-3-03 have been fully considered but they are not persuasive. Applicant contends that Nakagawa does not disclose a chip carrier. However, with the exception of amended claim 90, there is no claim for a chip carrier. Independent claim 87 requires a substrate with an insulating layer, a support surface, and a shielding material. Nakagawa discloses all of said requirements, as cited in the previous and instant rejections.

Applicant contends that Nakagawa does not teach providing a layer of magnetic field shielding material on both a bottom surface and a top surface of the substrate because Nakagawa teaches that said material may be formed on only one surface. Examiner disagrees. Nakagawa clearly shows the magnetic materials (el.22,26) on both surfaces of the substrate in Fig.10, as cited in the previous and instant rejections. Nakagawa also discloses in col.18 lines 9-12 that said shielding materials are formed on both surfaces of the substrate.

Applicant contends that the combination of Nakagawa and Fukuoka is improper because the two references are directed to solving different problems. Examiner disagrees. Even if the two references are motivated towards different objectives, both references are forming very similar structures. Nakagawa is forming a printed circuit board (title) made primarily of ceramic material (col.4 lines 15-18) with a shielding

structure (col.18 lines 9-12), and Fukuoka is forming a printed wiring board made primarily of ceramic material (col.15 lines 27-31) with a shielding structure (col.18 lines 13-19). Therefore, most fabrication steps for one reference would be the same or similar as the other reference, and the combination of the two is proper.

Applicant contends that Fukuoka does not disclose any magnetic field shielding materials, much less a magnetic field shielding material layer. Examiner disagrees. As cited in the previous and instant rejections, Fig.1 discloses layer 104 which comprises conductive material of tungsten and gold/nickel. Even if Fukuoka does not disclose that said materials will shield electromagnetic interference and his purpose was only to provide electrical circuitry, said material layer will still provide some shielding of electromagnetic interference.

Applicant contends that the combination of Nakagawa and Tracy is improper because Nakagawa would have no motivation to use the ferrite, manganite, chromite, or cobaltite shielding materials of Tracy. Examiner disagrees. Tracy discloses that the advantages of said materials include being able to deposit it directly on the surface of a cell since it is not electrically conductive (col.5 lines 4-8), and said materials can shield the cell from stray magnetic fields and also focus internally generated magnetic fields within the cell (col.5 lines 16-18). Nakagawa would also benefit from said advantages.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nema O Berezny whose telephone number is (703) 305-3445. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, Jr. can be reached on (703) 308-4940. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.



Application/Control Number: 10/003,116

Page 8

Art Unit: 2813

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

NB

March 14, 2003

  
CARL WHITEHEAD JR.  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800